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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,519

11/07/2005

Erwin Bayer

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3569

26646 7590 11/13/2008  
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EXAMINER

SAAD, ERIN BARRY

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

11/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,519	<b>Applicant(s)</b> BAYER ET AL.	
	<b>Examiner</b> ERIN B. SAAD	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 16 and 18 is/are allowed.
- 6) ☐ Claim(s) 10-15, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/4/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10-12, 14-15 and 20-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujino (6,299,051) in view of Mattes (6,326,717).

Regarding claim 10, Tsujino states an ultrasonic bonder which uses oscillation to bond electronic parts together (column 1 lines 8-15). The bottom substrate is fixed to the base 9 (figure 1 and column 3 lines 51-55). The cartridge/bonding head 4 with sealing cap 4 holds the substrate 2 that is being ultrasonically bonded to bottom, stationary substrate (figure 1 and column 3 lines 29-40). The ultrasonic bonding device has two piezoelectric transducers 7, 8 (figure 1). The piezoelectric transducers 7, 8 create the oscillating motion of the cartridge/bonding head and are in line with each other on the cartridge/bonding head 4 (column 3 lines 55-63). The piezoelectric transducers would be displaceable with the cartridge/bonding head 4 since they are attached by the honcs 5, 6 (figure 1). The piezoelectric transducers are prestressable because the piezoelectric transducers and the honcs 5,6 can be changed to produce a frequency and phase difference for the driving oscillation system (column 4 lines 28-39 and figure 1). In the event that "prestressable" is not met by Tsujino, Mattes states the

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a of piezo actuator that is prestressable (column 1 lines 49-54). It would have been obvious at the time of the invention to use a prestressable piezo actuator with the ultrasonic bonder because it would allow for precise movements/oscillation of the cartridge/bonding holder during bonding. Tsujino states that a defined force is exerted to the top of the cartridge/bonding head 4 (column 3 lines 51-63). While it is not defined as a compression device, it would have been obvious to one skilled in the art at the time of the invention to use a compression device to exert a force to keep a constant pressure on the cartridge/bonding head while oscillating.

Regarding claims 11 and 12, these claims are intended use limitations. The intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

Regarding claim 14, Tsujino does state that the motions generate a circular/elliptical oscillating path (column 4 lines 28-39).

Regarding claim 15, Tsujino states a bonding holder 4 which to one skilled in the art would be defined as a cam gear because a cam gear is “a disk or cylinder having an irregular form such that its motion, usually rotary, gives to a part or parts in contact with it a specific rocking or reciprocating motion”.

Regarding claim 20, this claim is intrinsic because it is well known in the art that the force/path of the piezoactuators is selected by geometrical serial and parallel connection of piezoelements.

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Regarding claim 21, this claim is intrinsic because it is well known in the art that the maximum required electrical voltage of the piezoactuators is limited by electrical serial and parallel connection of piezoelements.

3. Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujino (6,299,051) and Mattes (6,326,717) as applied to claim 10 above, and further in view of Stoeklein et al. (6,617,766) and Culpepper (2003/0086748).

Regarding claim 13, Tsujino does state a defined force being exerted on the cartridge/bonding head 4, the type of compression device is not stated. However, Stoeklein et al. does mention a piezoelectric actuator 1 with piezo electric elements 2 used to exert a force  $F_u$  on an actuating element (figure 1 and column 3 lines 45-54). It would have been obvious at the time of the invention to use a piezoelectric actuator as the compression device exerting a defined force because using piezoelectric actuators to exert a force on an object are well known in the art as stated by Culpepper (page 6 paragraph 0053) and it would allow for a precise force to be defined to hold down the cartridge/bonding head 4.

#### ***Allowable Subject Matter***

4. Claims 16 and 18 are allowed.

5. The following is an examiner's statement of reasons for allowance: Claim 16 is allowable because the prior art of record failed to teach or disclose a friction welding device where the oscillator included an even number of piezoactuators arranged in pairs

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at least approximately on a line of application and where the lines of application of the piezoactuators extend transversely to a longitudinal center axis of the blade carrier with a first pair of piezoactuators engaged with a front end of the cartridge from opposite sides on a line of application axially in front of the blade, a second pair of piezoactuators engaged with a rear end of the cartridge from opposite sides on a line of application axially behind the blade.

Claim 18 is dependent on claim 16.

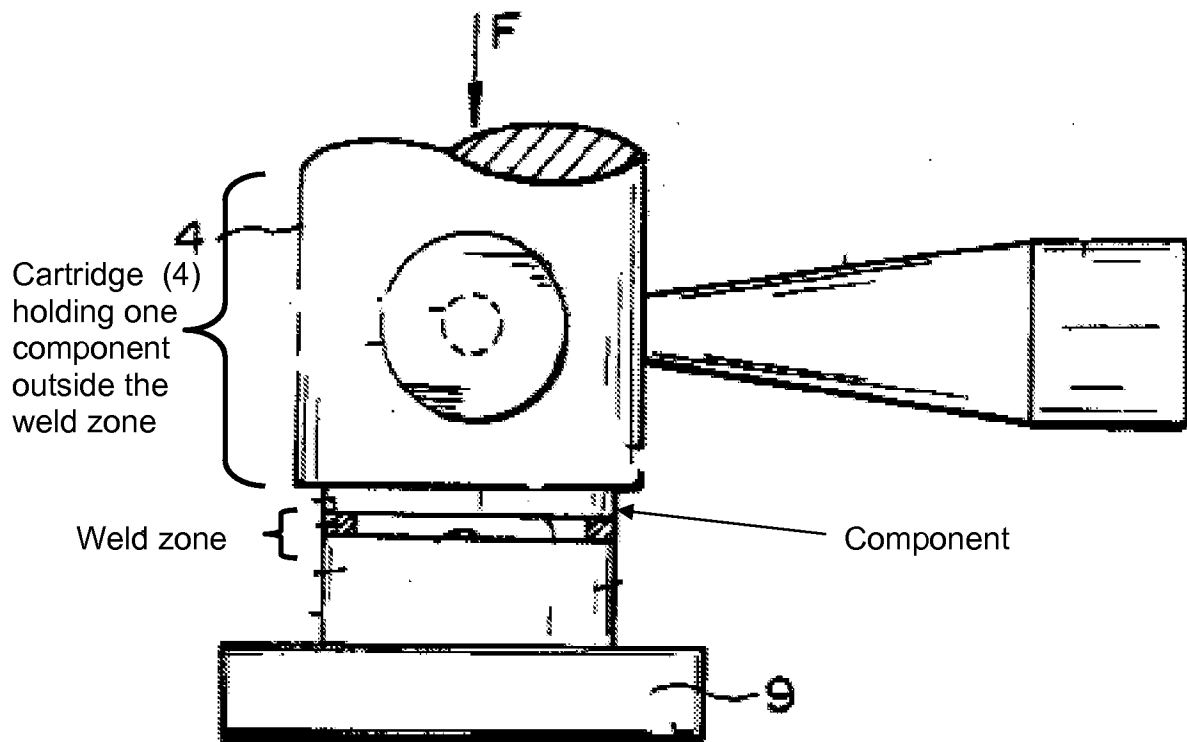
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

6. Applicant's arguments filed 9/4/2008 have been fully considered but they are not persuasive.

7. The Applicant argues that that Tsujino and Mattes does not disclose a cartridge adapted to accommodate the one of the components outside of a welding zone.

As taught by Tsujino in the figure 1 below, the cartridge is accommodating one of the components outside the welding zone. Therefore, Tsujino in view of Mattes does meet the limitations as set for in claim 10.



### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN B. SAAD whose telephone number is (571)270-3634. The examiner can normally be reached on Monday through Thursday from 8am-5pm Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. B. S./  
Examiner, Art Unit 1793  
11/4/2008  
/Kiley Stoner/  
Primary Examiner, Art Unit 1793



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